

**NORTH FORK SALT RIVER
WBID 0113**

Recreational Use Attainability Analysis

May 2007

PREPARED FOR:
RFP No: B3Z07134
Water Quality Monitoring & Assessment Section
Water Protection Program
Division of Environmental Quality
MISSOURI DEPARTMENT OF NATURAL RESOURCES
P O Box 176
Jefferson City, MO 65102

PREPARED BY:
MEC WATER RESOURCES, INC.
1123 Wilkes Blvd., Ste. 400
Columbia, MO 65201

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad):	North Fork Salt River
Missouri Water Body Identification (WBID) Number:	113
8-digit HUC:	07110005
County:	Schuyler / Adair
Upstream Legal Description (from Table H):	12, 62 nd N, 15 W
Downstream Legal Description (from Table H):	2, 62 N, 14 W
Number of sites evaluated	9
List all sites numbers, listed consequently upstream to downstream:	1- HWY J 2- EASH WAY 3- HWY A 4- ANCHOR WAY 5- COUNTY RD 58 6- HWY T 7- COUNTY RD 121 8- COUNTY RD 104 9- HWY 11

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters		
PDOP		± _____ Feet or ± _____ Meters	

III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s):	Queen City WWTF
Discharger Permit Number(s):	MO 0093785

IV. UAA Surveyor (please print legibly)

Name of Surveyor	RENEE MARTIN	Telephone Number:	(573) 443-4100
Organization/Employer:	MEC Water Resources		
Position:	ENVIR. SPECIALIST		

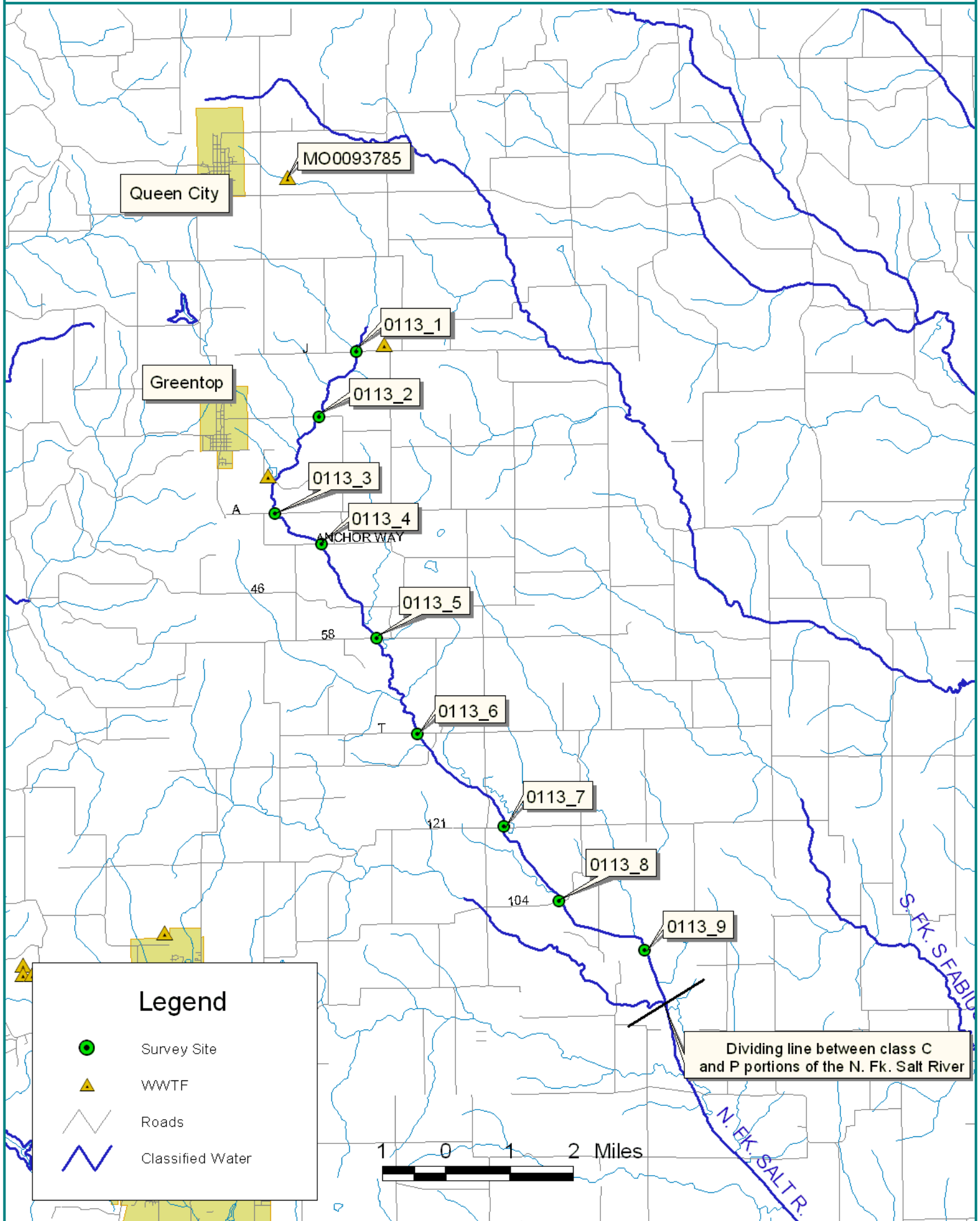
Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Signed: Renee Martin Date: 5/21/07

5-23-07

AKC 5/24/07

N. Fk. Salt River (0113), Length = 14.5 mi., Permit # MO0093785



WBID# 0113
 Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07 0715</u>	Site Location Description (e.g., road crossing): <u> Hwy 5</u>
Personnel (Data Collectors): <u>R MARTIN & J. FOTH</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>unknown</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0540259</u>		Y: <u>4468574</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>12</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-1-185</u>	<u>UPSTREAM SITE #1 TRANSECT #1</u>		
<u>0113-1-186</u>	<u>- FENCE</u> <u>- LIVESTOCK WATERING</u> <u>DOWNSTREAM SITE #1 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0113
Site# 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u> </u> % Sand	<u> </u> % Silt	<u>100</u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input checked="" type="checkbox"/> Oil	<input checked="" type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Renee Mart Date of Survey: 5/21/07

Organization: AE Solutions Position: ENV. Specialist

February 16, 2007

guc 5-23-07

AK 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Waterbody ID: 0113 Site #: 0113-1
(WBIID_Site#)

Estimated Channel Incision: 1.0 (m) (height between low bank width and water)
GPS Location (taken at transect 1):
UTM X: 0540259 UTM Y: 4468574
Horizontal Accuracy Estimate (GPS Data Quality): +/- 12 (feet)

Average Stream Width: 5.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: RENÉE MARTIN & JUSTIN FORTH

Date: 5/21/07 Time: 0715
Dissolved Oxygen: 4.51 (mg/L)
Dissolved Oxygen: 45.4 (% sat)
Specific Cond: 441.5 (µS/cm)
Water Temperature: 15.5 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.4	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
2	1.0	0.3	0.5	0.1	0.9	0.1	0.95	0.2	0.3	0.2	0.5	0.2	0.35	0.5	0.5	0.2	0.45	0.2	0.6	0.2	0.45	0.2
3	1.6	0.3	0.9	0.1	1.4	0.2	1.4	0.2	0.6	0.3	0.9	0.4	0.7	0.4	0.9	0.1	0.8	0.3	1.1	0.3	0.9	0.2
4	2.2	0.4	1.3	0.2	1.9	0.2	2.05	0.7	0.9	0.3	1.3	0.4	1.05	0.4	1.8	0.2	1.15	0.2	1.6	0.3	1.35	0.3
5	2.8	0.5	1.7	0.3	2.4	0.3	2.7	0.2	1.2	0.3	1.7	0.5	1.4	0.4	1.7	0.2	1.5	0.2	2.1	0.4	1.7	0.3
6	3.2	0.4	2.1	0.3	2.9	0.2	3.35	0.2	1.5	0.3	2.1	0.5	1.75	0.4	2.1	0.2	1.85	0.3	2.6	0.3	3.15	0.3
7	3.6	0.4	2.5	0.2	3.4	0.2	4.0	0.2	1.8	0.3	2.5	0.5	2.1	0.4	2.5	0.3	2.2	0.3	3.1	0.3	3.6	0.2
8	4.0	0.4	2.9	0.2	3.9	0.2	4.6	0.3	2.1	0.2	2.9	0.4	2.45	0.4	2.9	0.2	2.55	0.2	3.6	0.2	4.05	0.2
9	4.4	0.3	3.3	0.1	4.4	0.2	5.3	0.2	2.4	0.2	3.3	0.4	2.8	0.5	3.3	0.2	2.9	0.3	4.1	0.2	4.5	0.2
10	4.8	0.3	3.7	0.1	4.9	0.2	5.95	0.2	2.7	0.1	3.7	0.4	3.15	0.3	3.7	0.1	3.25	0.2	4.6	0.1	4.95	0.2
11	5.2	0.1	4.1	0.1	5.4	0.1	6.6	0.1	3.0	0.1	4.1	0.4	3.5	0.1	4.1	0.1	3.6	0.1	5.1	0.1	5.4	0.1
12	7.0	0.0	4.2	0.0	5.5	0.0	6.8	0.0	3.1	0.0	4.4	0.4	3.9	0.0	4.2	0.0	3.8	0.0	5.2	0.0	5.6	0.0
Feature Type (riffle run, or pool)	Pool		Pool		Pool		Pool		Pool		Pool		Pool		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed:

Renée Martin

Date:

5/21/07

OWC 5-23-07

OK 5/24/07

WBID# 0113
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/02 0815</u>	Site Location Description (e.g., road crossing): <u>EASY WAY</u>
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0539312</u>		Y: <u>4466924</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>21</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-2-187</u>	<u>UPSTREAM; SITE #2 TRANSECT #1</u> <u>- LIVE STOCK WATERING</u>	<u>0113-1-LIVESTOCK WATERING</u>	<u>2190 DOWNSTREAM SITE #2</u> <u>TRANSECT #3</u>
<u>0113-2-188</u>	<u>DOWNSTREAM SITE #2 TRANSECT #1</u> <u>- LIVESTOCK WATERING</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments: <u>cattle crossing</u>				

WBID# 0113
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	% Gravel	% Sand	% Silt	<u>100</u>	% Mud/Clay	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

<u>None</u>

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: <u>0113</u>	Site #: <u>0113-2</u> (WBID_Site#)	Dissolved Oxygen	
Estimated Channel Incision: <u>11.0</u> (m) (height between low bank width and water)		Date: <u>5/21/07</u>	Time: <u>0815</u>
GPS Location (taken at transect 1): UTM X: <u>0539312</u> UTM Y: <u>4466924</u>		Dissolved Oxygen: <u>5.04</u> (mg/L)	
Horizontal Accuracy Estimate (GPS Data Quality): <u>+/- 21</u> (feet)		Dissolved Oxygen: <u>52</u> (% sat)	
Average Stream Width: <u>2.0</u> (meters)	Length of Survey Segment: <u>150</u> (meters) (20x average stream width)	Specific Cond: <u>424.5</u> (µS/cm)	
Field Staff: <u>KENEE MARTIN + JUSTYN FOIA</u>		Water Temperature: <u>16.5</u> (°C)	

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.4	0.1	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.1	0.3	0.1
2	0.17	0.1	0.15	0.1	0.15	0.2	0.16	0.1	0.2	0.2	0.35	0.1	0.25	0.3	0.2	0.3	0.1	0.1	0.65	0.3	0.7	0.2
3	0.34	0.1	0.3	0.1	0.3	0.2	0.32	0.3	0.4	0.4	0.6	0.1	0.5	0.3	0.4	0.3	0.2	0.1	1.1	0.4	1.1	0.3
4	0.51	0.1	0.45	0.1	0.45	0.3	0.48	0.3	0.4	0.4	0.85	0.3	0.75	0.3	0.6	0.3	0.3	0.1	1.55	0.3	1.5	0.2
5	0.68	0.1	0.6	0.1	0.6	0.3	0.64	0.3	0.5	0.4	1.1	0.3	1.0	0.2	0.8	0.3	0.4	0.1	2.0	0.4	1.9	0.3
6	0.85	0.1	0.75	0.1	0.75	0.3	0.8	0.3	0.6	0.4	1.35	0.3	1.25	0.3	1.0	0.4	0.5	0.1	2.45	0.4	2.3	0.3
7	1.02	0.1	0.9	0.1	0.9	0.2	0.96	0.2	0.7	0.4	1.6	0.2	1.5	0.4	1.2	0.3	0.6	0.1	2.9	0.4	2.7	0.2
8	1.19	0.1	1.05	0.1	1.05	0.2	1.12	0.2	0.8	0.4	1.85	0.2	1.75	0.5	1.4	0.2	0.7	0.1	3.35	0.5	3.1	0.2
9	1.36	0.1	1.2	0.1	1.2	0.2	1.28	0.2	0.9	0.3	2.1	0.1	2.0	0.3	1.6	0.2	0.8	0.1	3.8	0.5	3.5	0.1
10	1.53	0.1	1.35	0.1	1.35	0.1	1.44	0.1	1.0	0.2	2.35	0.1	2.25	0.2	1.8	0.1	0.9	0.1	4.25	0.3	3.9	0.1
11	1.7	0.1	1.5	0.1	1.5	0.1	1.6	0.1	1.1	0.1	2.6	0.1	2.5	0.1	2.0	0.1	1.0	0.1	4.7	0.1	4.3	0.1
12	1.7	0.0	1.5	0.0	1.6	0.0	1.6	0.0	2.1	0.0	2.9	0.0	2.7	0.1	2.4	0.0	1.0	0.0	4.9	0.0	4.4	0.0
Feature Type (riffle, run, or pool)	Run		Run		Run		Run		Pool		Pool		Pool		Pool		Run		Pool		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank. GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: KenEE Martin Date: 5/21/07

Run C 5-23-07 AKC 5/24/07

WBID# 0113
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07 0920</u>	Site Location Description (e.g., road crossing): <u>HWY A</u>
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0538188</u>		Y: <u>4464457</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>15</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-3-143</u>	<u>UPSTREAM SITE #3 TRANSECT #1</u> <u>- FENCE</u>		
<u>0113-3-144</u>	<u>- LIVESTOCK WATERING</u> <u>DOWNSTREAM SITE #3 TRANSECT #1</u> <u>- LIVESTOCK WATERING</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use *Data Sheet D- Recreational Use Interview* when conducting interviews.)

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

WBID# 0113
Site# 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input checked="" type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments:					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u> </u> % Sand	<u> </u> % Silt	<u>100</u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: Amie Mart Date of Survey: 5/21/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

February 16, 2007

0113 5-23-07

AK 5/24/07

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Waterbody ID: 0113

Site #: 0113-3

(WBID, Site#)

Estimated Channel Incision: >1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0538187 UTM Y: 4464457

Horizontal Accuracy Estimate (GPS Data Quality): +/- 15 (feet)

Average Stream Width: 5.0 (meters) Length of Survey Segment: 150 (meters)

(20x average stream width)

Field Staff: RENEE MARTIN & JUSTIN FORT

Date: 5/21/07 Time: 0920

Dissolved Oxygen: 5.69 (mg/L)

Dissolved Oxygen: 59.6 (% sat)

Specific Cond: 421.5 (µS/cm)

Water Temperature: 17.5 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.2	0.1	0.0	0.1
2	0.35	0.1	0.3	0.1	0.3	0.1	0.6	0.2	0.6	0.3	0.6	0.3	0.75	0.4	0.55	0.2	0.75	0.2	0.55	0.1	0.4	0.3
3	0.7	0.1	0.6	0.1	0.6	0.1	1.1	0.2	1.1	0.4	1.2	0.5	1.4	0.4	1.1	0.3	1.3	0.3	0.9	0.2	0.8	0.4
4	1.05	0.1	0.9	0.1	0.9	0.1	1.6	0.2	1.6	0.4	1.8	0.6	2.05	0.5	1.65	0.4	1.85	0.4	1.25	0.3	1.2	0.5
5	1.4	0.1	1.2	0.1	1.2	0.1	2.1	0.2	2.1	0.4	2.4	0.6	2.7	0.5	2.2	0.4	2.4	0.4	1.6	0.3	1.6	0.5
6	1.75	0.1	1.5	0.1	1.5	0.1	2.6	0.2	2.6	0.4	3.0	0.5	3.35	0.6	2.75	0.4	2.95	0.4	1.95	0.2	2.0	0.5
7	2.1	0.1	1.8	0.1	1.8	0.1	3.1	0.2	3.1	0.4	3.6	0.6	4.0	0.6	3.3	0.4	3.5	0.4	2.3	0.2	2.4	0.4
8	2.45	0.1	2.1	0.1	2.1	0.1	3.6	0.3	3.6	0.5	4.2	0.5	4.65	0.6	3.85	0.4	4.05	0.4	2.05	0.2	2.8	0.4
9	2.8	0.1	2.4	0.1	2.4	0.1	4.1	0.3	4.1	0.4	4.8	0.4	5.3	0.5	4.4	0.4	4.6	0.3	3.0	0.2	3.2	0.2
10	3.15	0.1	2.7	0.1	2.7	0.1	4.6	0.2	4.6	0.3	5.4	0.2	5.95	0.2	4.95	0.3	5.15	0.2	3.35	0.2	3.6	0.2
11	3.5	0.1	3.0	0.1	3.0	0.1	5.1	0.1	5.1	0.1	6.0	0.1	6.6	0.1	5.5	0.1	5.7	0.1	3.7	0.1	4.0	0.1
12	3.5	0.0	3.0	0.0	3.0	0.0	5.3	0.0	5.3	0.0	6.1	0.0	6.8	0.0	5.9	0.0	5.9	0.0	3.7	0.0	4.1	0.0
Feature Type (riffle run, or pool)	Run		Run		Run		Pool		Pool		Pool		Pool		Pool		Pool		Run		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: _____

Date: _____

Ree Martin 5-23-07 05/24/07

WBID# 0113
 Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07</u> <u>1015</u>	Site Location Description (e.g., road crossing): <u>ANCHOR WAY</u>
Personnel (Data Collectors): <u>R. MARTIN + J FOTH</u>	
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0539375</u>		Y: <u>4463691</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>16</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-4-195</u>	<u>UPSTREAM SITE #4 TRANSECT #1</u>		
<u>0113-4-196</u>	<u>DOWNSTREAM SITE #4 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0113
Site# 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>—</u> % Gravel	<u>100</u> % Sand	<u>—</u> % Silt	<u>40</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: ABSOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Waterbody ID: 0113 Site #: 0113-4

(WBIID_Site#)

Estimated Channel Incision: 1.0 (m) (height between low bank width and water)

GPS Location (taken at transect 1):

UTM X: 0539375 UTM Y: 4463691Horizontal Accuracy Estimate (GPS Data Quality): +/- 16 (feet)Average Stream Width: 3.0 (meters) Length of Survey Segment: 150 (meters)

(20x average stream width)

Field Staff: RENEE MARTIN & JUSTIN FOTTADate: 5/21/07 Time: 10:15Dissolved Oxygen: 5.38 (mg/L)Dissolved Oxygen: 57.1 (% sat)Specific Cond: 417.8 (µS/cm)Water Temperature: 18.0 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.4	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.5	0.1
2	0.5	0.1	0.85	0.1	0.25	0.1	0.16	0.2	0.2	0.1	0.85	0.2	0.165	0.2	0.25	0.1	0.16	0.1	0.15	0.1	1.0	0.2
3	0.8	0.2	0.5	0.1	0.5	0.1	1.0	0.2	0.4	0.1	1.3	0.3	1.1	0.2	0.5	0.1	1.0	0.1	0.9	0.1	1.5	0.2
4	1.1	0.2	0.75	0.1	0.75	0.1	1.4	0.3	0.6	0.2	1.75	0.4	1.55	0.2	0.75	0.1	1.4	0.1	1.3	0.1	2.0	0.3
5	1.4	0.2	1.0	0.1	1.0	0.1	1.8	0.2	0.8	0.2	2.2	0.4	2.0	0.1	1.0	0.0	1.8	0.2	1.7	0.0	2.5	0.3
6	1.7	0.2	1.25	0.1	1.25	0.1	2.2	0.2	1.0	0.2	2.65	0.4	2.45	0.1	1.25	0.0	2.2	0.2	2.1	0.0	3.0	0.3
7	2.0	0.2	1.50	0.1	1.5	0.1	2.6	0.2	1.2	0.2	3.1	0.5	2.9	0.1	1.5	0.1	2.6	0.2	2.5	0.0	3.5	0.3
8	2.3	0.3	1.75	0.1	1.75	0.1	3.0	0.2	1.4	0.1	3.55	0.5	3.35	0.1	1.75	0.1	3.0	0.2	2.9	0.0	4.0	0.2
9	2.5	0.2	2.0	0.1	2.0	0.1	3.4	0.2	1.6	0.1	4.0	0.4	3.8	0.1	2.0	0.1	3.4	0.2	3.3	0.0	4.5	0.2
10	2.8	0.1	2.25	0.1	2.25	0.1	3.8	0.1	1.8	0.1	4.45	0.4	4.25	0.1	2.25	0.1	3.8	0.1	3.7	0.0	5.0	0.2
11	3.1	0.1	2.5	0.1	2.5	0.1	4.2	0.1	2.0	0.1	4.9	0.2	4.7	0.1	2.5	0.1	4.2	0.1	4.1	0.1	5.5	0.1
12	3.3	0.0	2.5	0.0	2.5	0.0	4.5	0.0	2.1	0.0	5.2	0.0	5.0	0.0	2.5	0.0	4.6	0.0	4.7	0.0	5.5	0.0
Feature Type (riffle run, or pool)	Run		Run		Run		Pool		Run		Pool		Run		Run		Run		Run		Pool	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0.1 (measurements less than 0.1m as <0.1, and greater than 1m as >1).

Measurement 1 depth = 0.1m (unless depth is insufficient). Measurement 11 depth = 0.1m (unless depth is insufficient). Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: _____

Date: 5/21/075-23-075/24/07

WBID# 0113
 Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (must be completed for each site)

Date & Time: <u>5/21/07</u> <u>1110</u>	Site Location Description (e.g., road crossing): <u>COUNTY ROAD 58</u>
Personnel (Data Collectors): <u>R. Mahm + J. Felt</u>	Facility Name: <u>QUEEN CITY WWTF</u>
Current Weather Conditions: <u>Clear</u>	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0540768</u>		Y: <u>4461330</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>18</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-5-197</u>	<u>UPSTREAM SITE #5, TRANSECT #1</u>		
<u>0113-5-198</u>	<u>DOWNSTREAM SITE #5, TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Comments:				

WBID# 0113
Site# 5

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>✓</u> % Cobble	<u>—</u> % Gravel	<u>80</u> % Sand	<u>—</u> % Silt	<u>20</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE Solutions Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Date: 5/21/07 Time: 11:0

Dissolved Oxygen: 7.98 (mg/L)

Dissolved Oxygen: 84.8 (% sat)

Specific Cond: 369.9 (µS/cm)

Water Temperature: 17.5 (°C)

Waterbody ID: 0113 Site #: 0113-5
(WBID_Site#)

Estimated Channel Incision: 41.0 (m) (height between low bank width and water)
GPS Location (taken at transect 1):
UTM X: 0540768 UTM Y: 4461330
Horizontal Accuracy Estimate (GPS Data Quality): +/- 18 (feet)

Average Stream Width: 5.5 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: KENEE MARTIN + JUSTIN FOTHA

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.4	0.1	0.3	0.1	0.4	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.1	0.0	0.0	3.6	0.1	0.0	0.0	0.0	0.8	0.0
2	0.8	0.1	0.8	0.2	0.5	0.2	0.6	0.1	0.9	0.2	0.35	0.12	0.35	0.1	3.8	0.1	0.35	0.1	0.25	0.1	1.2	0.1
3	1.2	0.1	1.3	0.2	0.9	0.3	1.1	0.1	1.5	0.3	1.2	0.1	0.7	0.1	4.0	0.1	0.7	0.1	0.5	0.1	1.6	0.1
4	1.6	0.1	1.8	0.2	1.3	0.4	1.6	0.1	2.1	0.3	1.65	0.1	1.05	0.1	4.2	0.1	1.05	0.1	0.75	0.1	2.0	0.2
5	2.0	0.2	2.3	0.3	1.7	0.4	2.1	0.1	2.7	0.4	2.1	0.1	1.4	0.1	4.4	0.1	1.4	0.1	1.0	0.1	2.4	0.2
6	2.4	0.2	2.8	0.3	2.1	0.3	2.6	0.1	3.3	0.4	2.55	0.1	1.75	0.1	4.6	0.1	1.75	0.1	1.25	0.1	2.8	0.2
7	2.8	0.2	3.3	0.3	2.5	0.3	3.1	0.1	3.9	0.3	3.0	0.1	2.1	0.1	4.8	0.1	2.1	0.1	1.5	0.1	3.2	0.2
8	3.2	0.1	3.8	0.2	2.9	0.2	3.6	0.1	4.5	0.2	3.45	0.1	2.45	0.1	5.0	0.1	2.45	0.1	1.75	0.1	3.6	0.1
9	3.6	0.1	4.3	0.2	3.3	0.2	4.1	0.1	5.1	0.2	3.9	0.1	2.8	0.1	5.2	0.1	2.8	0.1	2.0	0.1	4.0	0.1
10	4.0	0.1	4.8	0.2	3.7	0.1	4.6	0.1	5.7	0.2	4.35	0.1	3.15	0.1	5.4	0.1	3.15	0.1	2.25	0.1	4.4	0.1
11	4.4	0.1	5.3	0.1	4.1	0.1	5.1	0.1	6.3	0.1	4.8	0.1	3.5	0.1	5.6	0.1	3.5	0.1	2.5	0.1	4.8	0.1
12	4.5	0.0	5.4	0.0	4.5	0.0	5.4	0.0	6.8	0.0	5.2	0.0	3.5	0.0	5.7	0.0	3.7	0.0	2.5	0.0	5.5	0.0
Feature Type (riffle run, or pool)	Pool	Pool	Pool	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0, measurements less than 0.1m as <0.1, and greater than 1m as >1
Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: [Signature]

Date: 5/21/07

ONE 5-23-07 [Signature]

WBID# 0113
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07 1200</u>	Site Location Description (e.g., road crossing): <u>HWY T</u>
Personnel (Data Collectors): <u>R. MARTIN & J. FOTH</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0541801</u>		Y: <u>4458904</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>31</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-6-199</u>	<u>UPSTREAM SITE #6, TRANSECT #1</u>		
<u>0113-6-200</u>	<u>DOWNSTREAM SITE #6 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:
Comments: <u>Agriculture / Farm ground</u>				

WBID# 0113
Site# 6

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>2</u> % Cobble	<u>—</u> % Gravel	<u>70</u> % Sand	<u>—</u> % Silt	<u>38</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Algae on rocks under bridge in riffle

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Waterbody ID: D113Site #: D113-6
(WBID, Site#)Date: 5/21/07 Time: 1200Estimated Channel Incision: 1.0 (m) (height between low bank width and water)Dissolved Oxygen: 9.18 (mg/L)

GPS Location (taken at transect 1):

UTM X: 0541801 UTM Y: 4458904Dissolved Oxygen: 99.5 (% sat)Horizontal Accuracy Estimate (GPS Data Quality): +/- 31 (feet)Specific Cond: 377.5 (µS/cm)Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters)
(20x average stream width)Water Temperature: 19.4 (°C)Field Staff: RENÉE MARTIN & JUSTIN FORT

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.1	1.7	0.1	0.0	0.0	0.2	0.1	0.3	0.1	0.5	0.1	0.0	0.0	0.0	0.0
2	0.3	20.1	1.3	0.2	1.2	0.4	0.9	0.1	2.1	0.1	0.4	20.1	0.5	0.2	0.7	0.2	0.7	0.1	0.14	20.1	0.3	20.1
3	0.6	0.0	2.5	0.5	2.3	0.6	1.5	0.1	2.5	0.2	0.8	20.1	0.8	0.2	1.1	0.3	0.9	0.1	0.28	0.1	0.6	20.1
4	0.9	20.1	3.7	>1.0	3.4	0.9	2.1	0.2	2.9	0.2	1.2	0.1	1.1	0.2	1.5	0.5	1.1	0.1	0.42	0.1	0.9	0.1
5	1.2	0.1	4.9	>1.0	4.5	>1.0	2.7	0.3	3.3	0.2	1.6	0.1	1.4	0.2	1.9	0.5	1.3	0.1	0.56	0.1	1.2	20.1
6	1.5	20.1	6.1	>1.0	5.6	>1.0	3.3	0.4	3.7	0.4	2.0	0.1	1.7	0.2	2.3	0.5	1.5	0.1	0.7	0.1	1.5	20.1
7	1.8	0.2	7.3	>1.0	6.7	>1.0	3.9	0.3	4.1	0.4	2.4	20.1	2.0	0.2	2.7	0.4	1.7	0.1	0.84	0.1	1.8	20.1
8	2.1	0.1	8.5	>1.0	7.8	0.8	4.5	0.2	4.5	0.4	2.8	20.1	2.3	0.1	3.1	0.3	1.9	0.1	0.98	0.1	2.1	20.1
9	2.4	0.0	9.7	>1.0	8.9	0.6	5.1	0.3	4.9	0.4	3.2	20.1	2.6	0.1	3.5	0.2	2.1	0.1	1.12	0.1	2.4	0.1
10	2.7	20.1	10.9	0.6	10.0	0.3	5.7	0.3	5.3	0.3	3.6	20.1	2.9	0.1	3.9	0.1	2.3	0.1	1.26	20.1	2.7	0.1
11	3.0	20.1	12.1	0.1	11.1	0.1	6.3	0.1	5.7	0.1	4.0	20.1	3.2	0.1	4.3	0.1	2.5	0.1	1.4	20.1	3.0	20.1
12	3.0	0.0	12.6	0.0	11.4	0.0	6.7	0.0	5.9	0.0	4.0	0.0	4.7	0.0	4.5	0.0	3.5	0.0	1.4	0.0	3.2	0.0
Feature Type (riffle run, or pool)	Riffle	Pool	Pool	Pool	Run	Pool	Run	Run	Pool	Run	Run	Pool	Run	Run	Pool	Run	Riffle	Run	Riffle	Run	Run	Run

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0, measurements less than 0.1m as <0.1, and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient). Measurement 11 depth = 0.1m (unless depth is insufficient). Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renée MartinDate: 5/21/07Renée Martin5-23-075/24/07

WBID# 0113
 Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07</u> <u>1256</u>	Site Location Description (e.g., road crossing): <u>COUNTY ROAD 121</u>
Personnel (Data Collectors): <u>R. MARTIN; J. FOTH</u>	
Current Weather Conditions: <u>Clear</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>Unknown</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0543967</u>		Y: <u>4456549</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>23</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-7-1201</u>	<u>UPSTREAM SITE #7 TRANSECT #1</u>		
<u>0113-7-1202</u>	<u>DOWNSTREAM SITE #7 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:
Comments: <u>Ag Fields</u>				

WBID# 0113
Site# 7

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>None</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u> </u> % Cobble	<u> </u> % Gravel	<u>50</u> % Sand	<u> </u> % Silt	<u>50</u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Dissolved Oxygen

Waterbody ID: 0113Site #: 0113-7

(WBID Site#)

Date: 5/21/07Time: 1256Estimated Channel Incision: 1.0 (m) (height between low bank width and water)Dissolved Oxygen: 7.18 (mg/L)Dissolved Oxygen: 78.4 (% sat)Specific Cond: 407.2 (µS/cm)Average Stream Width: 8

(meters)

Length of Survey Segment: 160

(meters)

Water Temperature: 20.4 (°C)Field Staff: RENEE MARTIN & JUSTYN FORTH

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.1	0.7	0.1	0.2	0.1	4.5	0.1	0.3	0.1	0.2	0.1
2	0.35	0.3	1.0	0.3	0.85	0.3	0.9	0.2	1.05	0.2	1.2	0.1	1.5	0.1	1.1	0.1	5.0	0.1	1.2	0.1	1.1	0.1
3	1.5	0.4	1.8	0.4	1.6	0.3	1.2	0.3	1.9	0.2	2.0	0.1	2.3	0.1	2.0	0.0	5.5	0.1	2.1	0.1	2.0	0.1
4	2.25	0.6	2.6	0.3	2.35	0.5	2.5	0.3	2.75	0.2	2.8	0.1	3.1	0.1	2.9	0.0	6.0	0.1	3.0	0.0	2.9	0.1
5	3.0	0.5	3.4	0.4	3.1	0.4	3.3	0.3	3.6	0.2	3.6	0.2	3.9	0.2	3.8	0.1	6.5	0.1	3.9	0.1	3.8	0.1
6	3.75	0.5	4.2	0.4	3.85	0.4	4.1	0.3	4.45	0.1	4.4	0.2	4.7	0.2	4.7	0.1	7.0	0.1	4.8	0.1	4.7	0.1
7	4.5	0.4	5.0	0.4	4.6	0.5	4.9	0.3	5.3	0.1	5.2	0.2	5.5	0.2	5.6	0.1	7.5	0.1	5.7	0.1	5.6	0.1
8	5.25	0.3	5.8	0.4	5.35	0.4	5.7	0.3	6.15	0.1	6.0	0.2	6.3	0.2	6.5	0.1	8.0	0.1	6.6	0.1	6.5	0.0
9	6.0	0.3	6.6	0.3	6.1	0.4	6.5	0.3	7.0	0.1	6.8	0.2	7.1	0.3	7.4	0.1	8.5	0.1	7.5	0.2	7.4	0.1
10	6.75	0.2	7.4	0.1	6.85	0.3	7.3	0.3	7.85	0.1	7.6	0.2	7.9	0.2	8.3	0.1	9.0	0.1	8.4	0.1	8.3	0.3
11	7.5	0.1	8.2	0.1	7.6	0.1	8.1	0.1	8.7	0.1	8.4	0.1	8.7	0.1	9.2	0.1	9.5	0.1	9.8	0.1	9.2	0.1
12	7.6	0.0	8.3	0.0	7.9	0.0	8.4	0.0	8.8	0.0	8.5	0.0	8.9	0.0	9.3	0.0	9.8	0.0	9.5	0.0	9.4	0.0
Feature Type (riffle run, or pool)	Run		Run		Run		Run		Run		Run		Run		Run		Run		Run		Run	

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0, measurements less than 0.1m as <0.1, and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient). Measurement 11 depth = 0.1m (unless depth is insufficient). Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renée MartinDate: 5/21/07Run 5-23-07 AKS/2407

WBID# 0113
Site# 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07 1350</u>	Site Location Description (e.g., road crossing):
Personnel (Data Collectors): <u>R. MARTIN + J. FOTH</u>	<u>COUNTY RD 104</u>
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0545365</u>		Y: <u>4454654</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input type="checkbox"/>
Dynamic Mode (Kinematic)	<input type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input type="checkbox"/>	Interpolation Other	<input type="checkbox"/>
Real Time Differential Processing	<input type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± <u>24</u> Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP	_____		

Photos:

Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID_Site#_##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-B-203</u>	<u>UPSTREAM SITE #8 TRANSECT #1</u>		
<u>0113-B-204</u>	<u>DOWNSTREAM SITE #8 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:
Comments: <u>Farm fields</u>				

WBID# 0113
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

% Cobble	<u>5</u>	% Gravel	<u>95</u>	% Sand	<u>—</u>	% Silt	<u>10</u>	% Mud/Clay	<u>—</u>	% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

None

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE Solutions Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0113 Site #: 0113-8
(WBID Site#)

Estimated Channel Incision: 11.0 (m) (height between low bank width and water)
GPS Location (taken at transect 1):
UTM X: 0945365 UTM Y: 4454654
Horizontal Accuracy Estimate (GPS Data Quality): +/- 24 (feet)

Average Stream Width: 8 (meters) Length of Survey Segment: 160 (meters)
(20x average stream width)

Field Staff: RENEE MARTIN + JUSTIN FORTH

Dissolved Oxygen

Date: 5/21/07 Time: 1350

Dissolved Oxygen: 7.29 (mg/L)

Dissolved Oxygen: 88.3 (% sat)

Specific Cond: 354.9 (µS/cm)

Water Temperature: 22.2 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.3	0.1	0.0	0.0	0.6	0.1	0.3	0.1	1.0	0.1	0.6	0.1	0.1	0.1	0.1	0.1	0.0	0.2	1.1	0.1	0.2	0.1
2	0.4	0.1	0.45	0.1	1.0	0.1	0.6	0.2	1.25	0.1	1.1	0.1	1.1	0.1	0.35	0.1	0.6	0.4	1.35	0.1	0.45	0.1
3	0.5	0.15	0.9	0.1	1.4	0.1	0.9	0.2	1.5	0.15	1.6	0.1	2.1	0.1	1.4	0.1	1.2	0.4	1.6	0.1	0.7	0.8
4	0.6	0.15	1.35	0.1	1.8	0.1	1.2	0.2	1.75	0.2	2.1	0.1	3.1	0.0	2.05	0.1	1.8	0.3	1.85	0.1	0.95	0.1
5	0.7	0.15	1.8	0.1	2.2	0.1	1.5	0.1	2.0	0.12	2.6	0.1	4.1	0.0	2.7	0.1	2.4	0.4	2.1	0.1	1.2	0.2
6	0.8	0.15	2.25	0.1	2.6	0.1	1.8	0.1	2.25	0.3	3.1	0.0	5.1	0.0	3.35	0.1	3.0	0.5	2.35	0.1	1.45	0.2
7	0.9	0.2	2.7	0.1	3.0	0.1	2.1	0.1	2.5	0.3	3.6	0.0	6.1	0.0	4.0	0.0	3.6	0.5	2.6	0.1	1.7	0.3
8	1.0	0.2	3.15	0.1	3.4	0.1	2.4	0.1	2.75	0.3	4.1	0.0	7.1	0.0	4.65	0.0	4.2	0.5	2.85	0.1	1.95	0.3
9	1.1	0.2	3.6	0.1	3.8	0.1	2.7	0.1	3.0	0.3	4.6	0.0	8.1	0.1	5.3	0.2	4.8	0.5	3.1	0.1	2.2	0.2
10	1.2	0.2	4.05	0.1	4.2	0.1	3.0	0.1	3.25	0.3	5.1	0.1	9.1	0.1	5.95	0.1	5.4	0.4	3.35	0.1	2.45	0.2
11	1.3	0.1	4.5	0.2	4.6	0.1	3.3	0.1	3.5	0.3	5.6	0.1	10.1	0.1	6.6	0.1	6.0	0.3	3.6	0.1	2.7	0.1
12	2.4	0.0	4.9	0.3	4.7	0.0	3.5	0.0	3.6	0.3	5.7	0.0	10.2	0.0	7.7	0.0	10.0	0.3	3.9	0.0	3.0	0.0
Feature Type (riffle run, or pool)	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.

GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.

Transects in order of up to downstream.

Mark dry depth measurements as 0; measurements less than 0.1m as <0.1; and greater than 1m as >1

Measurement 1 depth = 0.1m (unless depth is insufficient); Measurement 11 depth = 0.1m (unless depth is insufficient); Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: _____

Date: _____

MHC 5-23-07 5/21/07

WBID# 0113
 Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Date & Time: <u>5/21/07 1430</u>	Site Location Description (e.g., road crossing): <u>HWY 11</u>
Personnel (Data Collectors): <u>L. MARTIN + J. FOTH</u>	
Current Weather Conditions: <u>CLEAR</u>	Facility Name: <u>QUEEN CITY WWTF</u>
	Permit Number: <u>MO 0093785</u>
Weather Conditions for Past 10 days: <u>UNKNOWN</u>	
Drought Conditions?: No drought <input type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input checked="" type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site GPS Coordinates: UTM X: <u>0547546</u>		Y: <u>4453409</u>	
HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)			
Global Positioning System (GPS)		Interpolation	
Static Mode	<input checked="" type="checkbox"/>	Topographic Map or DRG	<input checked="" type="checkbox"/>
Dynamic Mode (Kinematic)	<input checked="" type="checkbox"/>	Aerial Photograph or DOQQ	<input checked="" type="checkbox"/>
Precise Positioning Service	<input checked="" type="checkbox"/>	Satellite Imagery	<input checked="" type="checkbox"/>
Signal Averaging	<input checked="" type="checkbox"/>	Interpolation Other	<input checked="" type="checkbox"/>
Real Time Differential Processing	<input checked="" type="checkbox"/>		
HORIZONTAL ACCURACY ESTIMATE			
GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____ ± _____ Feet or ± _____ Meters	
EPE	± <u>23</u> Feet or ± _____ Meters		
PDOP	_____		

Photos:

Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)	Photo ID# (WBID Site# ##)	Photo Purpose and Direction (upstream, downstream, other)
<u>0113-9-205</u>	<u>UPSTREAM SITE #9 TRANSECT #1</u>		
<u>0113-9-206</u>	<u>DOWNSTREAM SITE #9 TRANSECT #1</u>		

Uses Observed*: (Uses actually observed at time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Surrounding Conditions*: (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input checked="" type="checkbox"/> Other:
Comments: <u>Ag Fields</u>				

WBID# 0113
Site# 9

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization

(must be completed for each site)

Indications of Human Use*: (attach photos)

<input type="checkbox"/> Roads	<input type="checkbox"/> Rope swings	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Livestock Watering	<input type="checkbox"/> RV / ATV Tracks
<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Other:	
Comments: <u>NONE</u>					

Stream Morphology:

Upstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Transect (#)	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE						
RUN						
POOL						

Downstream View's Physical Descriptions: Is there any water present at this view? ☐ Yes ☐ No

If so, is there an obvious current? ☐ Yes ☐ No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Substrate*: (These values should add up to 100%.)

<u>—</u> % Cobble	<u>25</u> % Gravel	<u>75</u> % Sand	<u>—</u> % Silt	<u>—</u> % Mud/Clay	<u>—</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE

Water Characteristics*: (Mark all that apply.)

ODOR:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
COLOR:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
BOTTOM DEPOSIT:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
WATER SURFACE DEPOSITION:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments to this form.

*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Please verify that you have completed all sections, checked all applicable boxes and that everything is complete.

Surveyor's Signature: [Signature] Date of Survey: 5/21/07

Organization: AE SOLUTIONS Position: ENV. SPECIALIST

MEC Recreational Use Attainability Analysis Field Survey Sheet

Waterbody ID: 0113 Site #: 0113-9
(WBID Site#)

Estimated Channel Incision: 41.0 (m) (height between low bank width and water)
GPS Location (taken at transect 1):
UTM X: 0547546 UTM Y: 4453409
Horizontal Accuracy Estimate (GPS Data Quality): +/- 23 (feet)

Average Stream Width: 6.0 (meters) Length of Survey Segment: 150 (meters)
(20x average stream width)

Field Staff: RENEE MARTIN + JUSTIN FORT

Dissolved Oxygen
Date: 5/21/07 Time: 1430

Dissolved Oxygen: 7.51 (mg/L)
Dissolved Oxygen: 91.8 (% sat)
Specific Cond: 432.0 (µS/cm)
Water Temperature: 23.9 (°C)

Transect Cross-Section

Measurement	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.7	0.1	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0
2	0.5	0.2	0.5	0.2	0.4	0.1	0.3	0.1	0.6	0.1	0.7	0.2	1.05	0.1	0.5	0.1	0.75	0.1	0.8	0.1	0.5	0.1
3	0.8	0.2	0.8	0.2	0.6	0.1	0.5	0.1	1.2	0.1	1.4	0.2	1.4	0.0	1.4	1.0	1.5	0.1	1.2	0.1	1.0	0.1
4	1.1	0.2	1.1	0.2	0.8	0.1	0.7	0.1	1.8	0.1	2.1	0.0	1.75	0.1	1.5	0.1	2.25	0.1	1.6	0.1	1.5	0.1
5	1.4	0.2	1.4	0.2	1.0	0.1	0.9	0.1	2.4	0.1	2.8	0.0	2.1	0.1	2.0	0.1	3.0	0.1	2.0	0.1	2.0	0.1
6	1.7	0.2	1.7	0.2	1.2	0.08	1.1	0.1	3.0	0.1	3.5	0.1	2.45	0.1	2.5	0.0	3.75	0.1	2.4	0.1	2.5	0.1
7	2.0	0.1	2.0	0.2	1.4	0.2	1.3	0.1	3.6	0.1	4.2	0.1	2.8	0.1	3.0	0.1	4.5	0.1	2.8	0.1	3.0	0.1
8	2.3	0.1	2.3	0.2	1.6	0.2	1.5	0.1	4.2	0.1	4.9	0.1	3.15	0.1	3.5	0.1	5.25	0.0	3.2	0.1	3.5	0.1
9	2.6	0.1	2.6	0.2	1.8	0.1	1.7	0.2	4.8	0.1	5.6	0.1	3.5	0.1	4.0	0.1	6.0	0.1	3.6	0.1	4.0	0.1
10	2.9	0.1	2.9	0.1	2.0	0.1	1.9	0.2	5.4	0.1	6.3	0.1	3.85	0.2	4.5	0.1	6.75	0.1	4.0	0.1	4.5	0.1
11	3.2	0.1	3.2	0.1	2.2	0.1	2.1	0.1	6.0	0.1	7.0	0.1	4.2	0.2	5.0	0.1	7.5	0.1	4.4	0.1	5.0	0.1
12	3.9	0.0	3.7	0.0	2.5	0.0	2.8	0.0	6.0	0.0	7.3	0.0	4.4	0.2	5.0	0.0	7.5	0.0	4.6	0.0	5.0	0.0
Feature Type (riffle run, or pool)	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run	Run

Notes: Transects will be measured beginning on left descending bank and finishing on right descending bank.
GPS location corresponds to Transect 01. Transects ordered in upstream to downstream order.
Transects in order of up to downstream.
Mark dry depth measurements as 0. Measurements less than 0.1m as <0.1, and greater than 1m as >1.
Measurement 1 depth = 0.1m (unless depth is insufficient). Measurement 11 depth = 0.1m (unless depth is insufficient). Measurement 12 distance = entire wetted width distance and depth = 0m.

Signed: Renee Martin

Date: 5/21/07

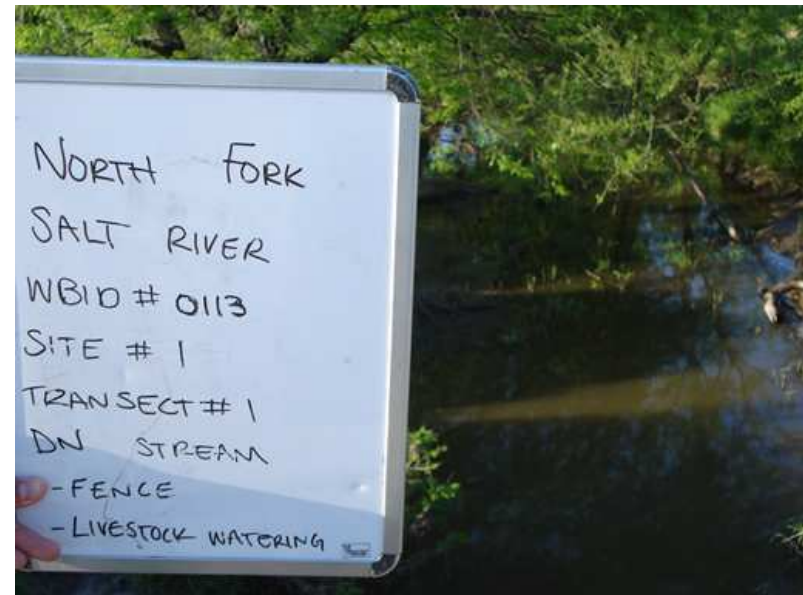
ARC 5-23-07

ARC 5/24/07

WBID# 0131 North Fork Salt River



Site# 1 Photo ID# 185, Transect 1, Upstream



Site# 1 Photo ID# 186, Transect 1, Downstream



Site# 2 Photo ID# 187, Transect 1, Upstream



Site# 2 Photo ID# 188, Transect 1, Downstream

WBID# 0131 North Fork Salt River



Site# 2 Photo ID# 190, T 3, Livestock Watering



Site# 3 Photo ID# 193, Transect 1, Upstream



Site# 3 Photo ID# 194, Transect 1, Downstream

WBID# 0131 North Fork Salt River



Site# 4 Photo ID# 195, Transect 1, Upstream



Site# 4 Photo ID# 196, Transect 1, Downstream



Site# 5 Photo ID# 197, Transect 1, Upstream



Site# 5 Photo ID# 198, Transect 1, Downstream

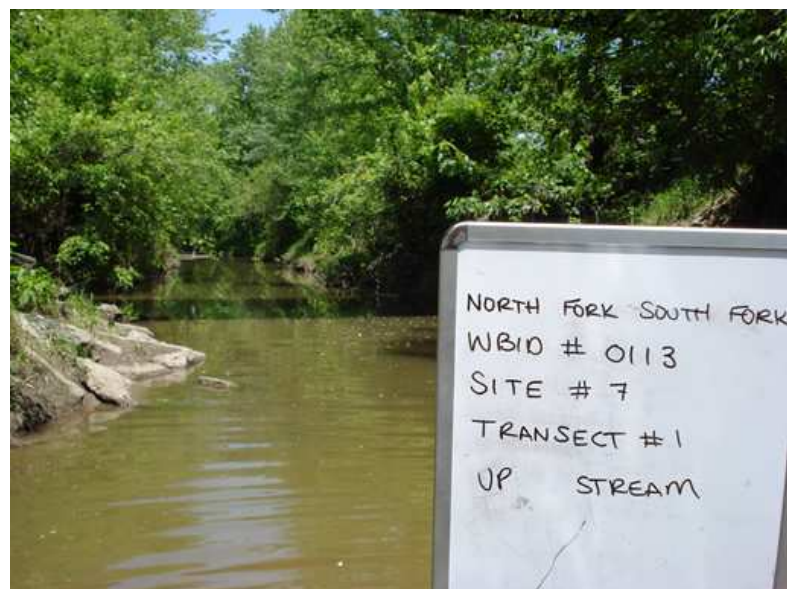
WBID# 0131 North Fork Salt River



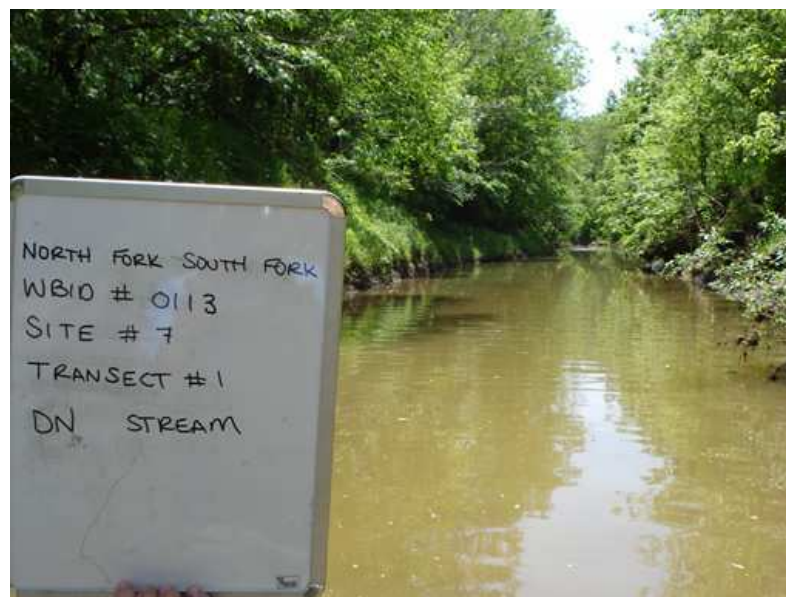
Site# 6 Photo ID# 199 Transect 1, Upstream



Site# 6 Photo ID# 200, Transect 1, Downstream

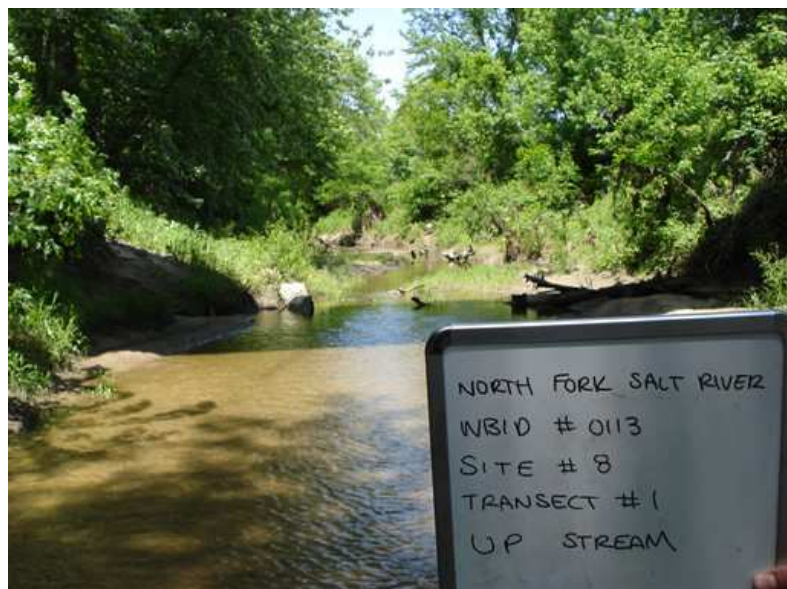


Site# 7 Photo ID# 201, Transect 1, Upstream



Site# 7 Photo ID# 202, Transect 1, Downstream

WBID# 0131 North Fork Salt River



Site# 8 Photo ID# 203, Transect 1, Upstream



Site# 8 Photo ID# 204, Transect 1, Downstream



Site# 9 Photo ID# 205, Transect 1, Upstream



Site# 9 Photo ID# 206, Transect 1, Downstream